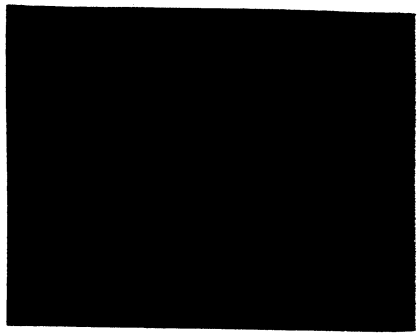
Installing Frame Products

FrameMaker® 4

X/Motif Version



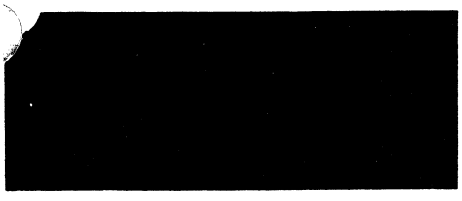
INSTALLING FRAME PRODUCTS

X / MOTIF

FRAME TECHNOLOGY CORPORATION
1010 Rincon Circle
San Jose, California 95131
USA

FRAME TECHNOLOGY INTERNATIONAL LIMITED
Unit 52, Airways Industrial Estate
Cloghran, Dublin 17
Ireland

Part Number 41-02983-01
September 1993



801–6712–01

IMPORTANT NOTICE

Frame Technology® Corporation (Frame®) and its licensors retain all ownership rights to the FrameMaker® computer program and other computer programs offered by Frame (hereinafter collectively called "Frame Software") and their documentation. Use of Frame Software is governed by the license agreement accompanying your original media. The Frame Software source code is a confidential trade secret of Frame. You may not attempt to decipher or decompile Frame Software or develop source code for Frame Software, or knowingly allow others to do so. You may not develop passwords or codes or otherwise enable the Save feature of Frame Software. Frame Software and its documentation may not be sublicensed and may not be transferred without the prior written consent of Frame.

Only you and your employees and consultants who have agreed to the above restrictions may use Frame Software (with the Save feature enabled), and only on the authorized equipment.

Your right to copy Frame Software and this publication is limited by copyright law. Making copies, adaptations, or compilation works (except copies of Frame Software for archival purposes or as an essential step in the utilization of the program in conjunction with the equipment), without prior written authorization of Frame, is prohibited by law and constitutes a punishable violation of the law.

FRAME TECHNOLOGY CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL FRAME BE LIABLE FOR ANY LOSS OF PROFITS, LOSS OF BUSINESS, LOSS OF USE OR DATA, INTERRUPTION OF BUSINESS, OR FOR INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND, EVEN IF FRAME HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES ARISING FROM ANY DEFECT OR ERROR IN THIS PUBLICATION.

Frame may revise this publication from time to time without notice. Some states or jurisdictions do not allow disclaimer of express or implied warranties in certain transactions; therefore, this statement may not apply to you.

Copyright © 1986–1993 Frame Technology Corporation. All rights reserved.

In the United States, Frame, the Frame logo, FrameMaker, FrameReader, Frame Technology, and FrameViewer are registered trademarks, and FrameBuilder, FrameMaker International Dictionaries, FrameMath, FrameServer, and FrameWriter are trademarks, of Frame Technology Corporation.

The following are trademarks or registered trademarks of Frame Technology Corporation in countries outside of the United States: Frame, the Frame logo, FrameBuilder, FrameMaker, FrameMaker International Dictionaries, FrameMath, FrameReader, FrameServer, Frame Technology, FrameViewer, and FrameWriter.

The spelling and thesaurus portions of Frame Software are based on THE PROXIMITY LINGUISTIC SYSTEM © 1992 Proximity Technology Inc.; C.A. Stromberg AB; Espasa-Calpe; Hachette; IDE a.s.; Kruger; Lluis de Yzaguirre i Maura; Merriam-Webster Inc.; Munksgaard Int. Publishers Ltd.; Nathan; Text & Satz Datentechnik; Van Dale Lexicographie bv; William Collins Sons & Co. Ltd.; Zanichelli. All rights reserved.

PANTONE® Computer Video simulation used in Frame Software may not match PANTONE-identified solid color standards. Use current PANTONE Color Reference Manuals for accurate color. PANTONE Color Computer Graphics © Pantone, Inc. 1986, 1988.

The following are trademarks or registered trademarks of their respective companies or organizations:

Apple, AppleTalk, Macintosh, LaserWriter, ImageWriter, Finder, MultiFinder, QuickDraw, MacroMaker / Apple Computer, Inc.

Proximity, Linguibase / Proximity Technology Inc.

Sun Microsystems, Sun Workstation, TOPS, NeWS, NeWSprint, OpenWindows, TypeScaler, SunView, SunOS, NFS, Sun-3, Sun-4, Sun386i, SPARC, SPARCstation / Sun Microsystems, Inc.

All other brand or product names are trademarks or registered trademarks of their respective companies or organizations.

Any provision of Frame Software to the US Government is with "Restricted Rights" as follows: Use, duplication, or disclosure by the Government is subject to restrictions set forth in subparagraphs (a) through (d) of the Commercial Computer-Restricted Rights clause at FAR 52.227-19 when applicable, or in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013, and in similar clauses in the NASA FAR Supplement. Any provision of Frame Software documentation to the US Government is with Limited Rights. The contractor/manufacturer is Frame Technology Corporation, 1010 Rincon Circle, San Jose, CA 95131.

US versions are printed in the United States; international versions are printed in Ireland.

TABLE OF CONTENTS

USING THIS MANUAL

1 INSTALLING FILES 1

Getting started 1

Creating a Frame product directory 2

Selecting the files to install 3

Installing Frame products from CD-ROM 5

Loading the CD-ROM into the drive 6

Checking for a /cdrom directory 6

Checking whether the CD-ROM drive is mounted 7

Mounting the CD-ROM drive on a local system 8

Mounting the CD-ROM drive from a remote system 9

Running the CD-ROM installation script 12

Troubleshooting the CD-ROM installation 12

Installing Frame products from tape 13

Preparing to install 13

Extracting the readtape script from the tape 13

Running the installation script 15

Checking the installation 15

Copying Frame product files 16

Where to go from here 16

2 SETTING UP ENVIRONMENTS 17

Using the fmusersetup script 17

Running fmusersetup 18

Running fmusersetup as root 18

Making corrections for absolute paths 19

Setting a user's environment without fmusersetup 19

Renaming Frame product commands 20

Using $FMHOME 21

Integrating Frame products with Desktop environments 21

3 SETTING UP LICENSES 23
Licensing basics 23
License types 23
License passwords 25
Licenses file 25
Setting up shared licenses 25
Setting up work groups for shared licenses 26
Setting up license servers 26
Setting up environments for work groups 27
Setting up personal licenses 28
Setting up a central licenses file 28
Setting up a personal licenses file 28
Using the fmaddlicense program 29
Getting help 29
Adding licenses 29
Listing licenses 30
Reserving licenses 30
Removing and reassigning licenses 31
Setting the timeout interval for shared licenses 31
Exiting fmaddlicense 32
Registering the product 32
How licensing works 32
Licensing files, scripts, programs, and variables 32
What happens when you start a Frame product 34
Generating license reports 35
Troubleshooting licensing 37
Displaying licensing messages 37
Specifying personal or shared licenses 38
The Frame product reports that there are no licenses 38
The Frame product reports that the license server failed 38
The Frame product cannot communicate with the license server 39
The license server process is running, but you cannot get a license 41
Manually starting the license server 41
The license server process detects a duplicate license 41

4 STARTING FRAME PRODUCTS 43
Starting the Frame product 43
Running Frame products on a remote system 45

APPENDIX A UPGRADING FROM AN EARLIER RELEASE 47
Determining how to upgrade 47
Updating licenses 48
Using existing setup files 48
Using existing X resources 48
Using existing setup files 49
Using templates 50
Using nonstandard fonts 50
Using two releases simultaneously 51
Starting the earlier release 51
Starting the current release 52

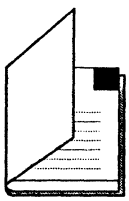
INDEX 53

USING THIS MANUAL

This manual, *Installing Frame Products*, describes how to install document publishing software from Frame Technology®. You can use Frame® products to create a wide range of publication-quality documents—books, technical manuals, letters, memos, reports, newsletters, and presentations.

Using FrameBuilder™ and FrameMaker® documentation

Whether you're a publishing novice or a production expert, FrameBuilder and FrameMaker documentation provide a clear and easy path to productivity—a tutorial to get you started, booklets describing installation and shortcuts, online Help, and more. Some of the documents are provided in printed form; most are available online and are accessible through online Help.



What to look for in print

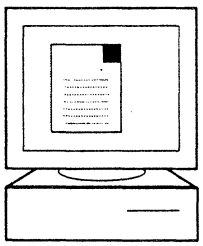
The following FrameBuilder and FrameMaker information is available in print:

Last-minute installation information *Installation Notes* provide important information that could not be included in this manual. *Installation Notes* are printed only when required.

Tutorials *Getting Started* for a Frame product teaches the basic procedures and concepts you need to know before you start working on your own documents.

User's manuals *Using FrameBuilder* and *Using FrameMaker* are comprehensive guides to specific procedures. They are organized by tasks.

Abbreviated task instructions and shortcuts The *Quick Reference* for a Frame product contains abbreviated instructions for many tasks and lists keyboard shortcuts.



What to look for online

The following information is available online. For a list of online manuals, see the Online Manuals pop-up menu in the main Help menu.

Last-minute information The *Release Notes* provide important information that could not be included in the printed manuals.

New and changed features *What's New* describes the new and changed features in this release of a Frame product and directs you to further information. (It is available only for products that have a previous release and significant changes.)

Online references Online Help for a Frame product includes both indexed and context-sensitive help with commands, dialog boxes, and keyboard shortcuts.

Application management *Managing Frame Products* gives information on adding fonts to Frame products, on the files contained in this release, and on Frame product scripts and environment variables.

Custom use *Changing Setup Files* explains how to customize a Frame product and its environment.

Templates Predesigned templates are available for a variety of uses, for example, common business correspondence, newsletters, reports, outlines, and books. To see a list of templates, click New in the main Frame product window.

Samples Sample documents, available through online Help, show the types of documents you can create with Frame products.

Maker Interchange Format (MIF) The *MIF Reference* explains the MIF text format, which allows Frame products to share information with another application while preserving graphics, text, and formatting information.

Maker Markup Language (MML) The *MML Reference* describes a markup language that you can use with any standard text editor to create simple Frame product documents.

Filters *Using Frame Filters* provides information on converting documents to and from formats used by Frame products and a variety of other applications.

Multiple-platform use *Using Frame Products on Multiple Platforms* describes how the UNIX, Macintosh, and Windows versions of Frame products differ.

Using FrameViewer® documentation

The printed manual *Welcome to FrameViewer* contains the information you need to get started using FrameViewer. Online Help and the online manual *Using FrameViewer* (available from Help) provide additional information.

Using Frame Developer's Kit™ documentation

If you purchased the Frame Developer's Kit (FDK), you received two printed manuals. *FDK Programmer's Guide* describes how to use FDK to create applications and filters that work with Frame products. *FDK for Specific Platforms* for UNIX contains additional information for creating applications and filters in the UNIX environment. These manuals will direct you to online information about FDK.

About this manual

The instructions in this manual explain how to install and license X/Motif versions of Frame products.

To follow the instructions in this manual, you should know how to log in to your workstation and should have a general understanding of the UNIX operating system.

IMPORTANT: If you currently use an earlier release of a Frame product, see the appendix, "Upgrading from an Earlier Release."

About Frame products

This manual describes how to install Frame products for all X/Motif platforms currently supported by Frame. Frame often adds support for other platforms. For the latest information, contact your Frame sales representative.

You can install the X/Motif versions of Frame products on a single network of workstations that use the same file server. All users on workstations supported by Frame (including workstations provided by Hewlett-Packard, IBM, and Sun Microsystems) can share one installation directory and use the same setup files. This manual includes instructions for installing on a multiple-platform network.

Documents created with Frame products are compatible across platforms. For example, users of the X/Motif versions of FrameMaker can share documents with each other and with users of Macintosh and Microsoft Windows versions of FrameMaker. For more information about sharing documents, see your user's manual.

What you need

To install and use X/Motif versions of Frame products, you need one of the following systems.

Platform	Workstation	Disk Space	Operating System	Window Environment
HP	9000 series	20-85MB	HP-UX 8.0 or 9.0	X Window System version X11R4 or X11R5
IBM	RS/6000	20-80MB	AIX 3.2.3	X Window System version X11R4 or X11R5
Sun	SPARC-Station	20-75MB	SunOS 4.1.1 or later, or Solaris 2.1 or 2.2	X Window System version X11R4 or X11R5, or OpenWindows version 3

You also need:

- At least 16MB of memory.
- At least 30MB of swap space.
- An ICCCM-compliant window manager.

  Frame tests and recommends mwm, twm, olwm, and vuewm. If you don't have an ICCCM-compliant window manager, you might be unable to manipulate some Frame product windows.
- A PostScript printer (required to print).

- The appropriate Frame product distribution media. The following media types are available.

Platform	Media
HP	CD-ROM 4mm DDS (DAT)
IBM	CD-ROM 1/4" high-density cartridge tape
Solaris 2 or SunOS 4	CD-ROM 1/4" high-density cartridge tape

Registering Frame products by mail

To register Frame products by mail, fill out the US and Canadian Frame Product Registration Card in this package and mail it to Frame Technology Corporation. If you have purchased the international version of a Frame product, fill out the Frame Product International Registration Card and mail it to Frame Technology International Limited. The addresses are on the cover of this manual.

Registering Frame products online

If you are connected by electronic mail to Frame, you can register Frame products electronically. The script you use to set up your licenses will prompt you to register online.

Registration benefits

After you register, you are a licensed Frame product owner with all rights and privileges. As a registered customer in the United States and Canada, you are entitled to 30 days of free technical support. You are also eligible for warranty coverage, special offers and promotions, new upgrade programs, and first notice of future Frame products and services. Outside the United States and Canada, contact your local customer support representative for information about technical assistance.

To continue receiving notices of Frame product updates and new product information when you move to a new address, send a change-of-address card to Frame or your local representative.

1 INSTALLING FILES

This chapter provides instructions for installing Frame product files on a workstation or server.

IMPORTANT: If you already have an earlier release of FrameMaker, read the appendix, "Upgrading from an Earlier Release."

Frame distributes Frame product files on CD-ROM and magnetic tape. Locate the section that describes the installation procedure you require, and follow the steps provided.

Frame recommends that you do not log in as root to install Frame product files. Installing under your normal user name or under a special system administration name makes it easier to safely administer the Frame installation.

After installing the files, you'll need to set up user environments and licenses. See Chapter 2, "Setting Up Environments," and Chapter 3, "Setting Up Licenses."

GETTING STARTED

This section contains information and recommendations for:

- Creating a directory in which to install Frame products
- Selecting the files to install

Creating a Frame product directory

If you are installing Frame products for more than one user, you must put the files in a directory for which all Frame product users have read and execute permissions. The directory must also be mounted on all users' systems. To install the files, you must have write permission for the directory. Frame recommends that you install the Frame product files in a directory named `frame` in the directory where you normally store applications, for example, `/usr/frame` or `/var/frame`.

If you are installing Frame products for one user, you can put the Frame product files in any directory (as long as you have write permission for it).

IMPORTANT: Frame recommends that you make a separate directory for the Frame product files. Install only the Frame product files in this directory.

Using hard mounts

The file systems containing your Frame files should be hard-mounted. When you write to a hard-mounted file system, error checking guards against truncated files. When you write to a soft-mounted file system, your files can be truncated without notification by any number of error conditions (for example, if the file system is full). If a Frame process automatically writes to the Frame product installation directory, as with license configuration files, the file system containing your Frame product installation directory should also be hard-mounted.

If you have an earlier release of a product

If you have an earlier release of FrameMaker installed already, you must install FrameMaker 4 in a different directory. (See the appendix, "Upgrading from an Earlier Release.") Maintaining the earlier release lets users continue to use it to edit existing documents. For more information, see "Using two releases simultaneously" on page 51.

Creating the directory

Use the `mkdir` command to create the Frame product installation directory. For example, type:

```
mkdir /usr/frame
```

IMPORTANT: The remaining installation instructions refer to the directory you just created as *`install_dir`*. Type the full name of the new directory when you see *`install_dir`* in a command.

Selecting the files to install

Because Frame products provide you with many options, the distribution media may contain several files you don't need; you can save disk space by excluding unnecessary files from the installation. Frame installation scripts let you choose the options you want to install and then read the necessary files from the media into your *`install_dir`* directory.

Choosing the user-interface language for international products

If you purchased international versions of a Frame product, you can choose which user interface languages to install. The installation script installs the user interface files, dictionary, thesaurus, demonstration files, and online manuals in the languages you choose. For information about choosing the default user interface language, see the online manual *Changing Setup Files*.

Choosing Frame products to install

The media contain files for several Frame products and their international versions. When the installation script asks which products you want to install, choose the base Frame product files and the specific files for the products you licensed. (You can install products for which you haven't purchased licenses. However, without licenses, you will only be able to run the demonstration versions. You can purchase and set up licenses later.)

Installing optional demonstration files

The demonstration and clip art files are not required, but they can be useful.

Installing online manuals

Frame products include a number of sample documents and online manuals. Use online Help to read *Release Notes* and other online manuals.

Installing printed manuals

If you are installing from CD-ROM, you can install the files for printed manuals. If you do so, be sure to install the LaserWriter Plus font set. For instructions on viewing and printing these manuals, open the file `$FMHOME/fminit/`*`UILanguage`*`/ProdManGuide/prodmenu.prd`, where *`UILanguage`* is the language of the user interface.

Installing dictionary and thesaurus files

When you choose a user-interface language, the installation script automatically installs the dictionary and thesaurus files for that language. You can also install dictionary and thesaurus files for additional languages. For example, in an International Marketing department, FrameMaker users may write letters in several languages. The installation software asks which languages to install. Choose the languages used at your site.

Installing fonts

The installation script automatically installs the basic LaserWriter screen fonts, which include Courier, Times, Helvetica, and Symbol. The script asks if you also want to install LaserWriter Plus screen fonts. The LaserWriter Plus font set is standard for most PostScript printers and includes the Courier, Times, Helvetica, Helvetica Narrow, Symbol, Avant Garde, Bookman, New Century Schoolbook, Palatino, Zapf Chancery, and Zapf Dingbats font families.

IMPORTANT: The Frame product distribution tape contains bitmapped (screen) font files and font metric files. To print, you must have corresponding outline (printer) fonts installed in your printer. Most printers have the LaserWriter Plus font set built in.

If you aren't sure which set of fonts to install, see the documentation for your printer. Even if your printer doesn't have all of the fonts built in, you may be able to download fonts (see your printer documentation for instructions). For information about adding fonts, see the online manual *Managing Frame Products*.

If you install your Frame products using the LaserWriter fonts instead of the LaserWriter Plus fonts, an unavailable fonts message will appear when you open some of the online files in this release. Frame therefore recommends that you install the LaserWriter Plus fonts unless you have printer or disk space limitations.

Installing the Frame Developer's Kit

The Frame Developer's Kit (FDK) provides an Application Program Interface (API) that lets you write custom software that is integrated with Frame products. The installation script asks you whether you want to install FDK. If you answer yes, it asks for a registration number. When you purchase FDK (or a Frame product that includes it), you receive a separate registration card that lists your FDK registration number.

Installing the Frame FilterPak

The Frame FilterPak contains filters for converting files created with other applications to Frame formats and saving Frame product files in other formats. The installation script asks you whether you want to install the FilterPak. If you answer yes, it asks for a registration number. When you purchase the FilterPak, you receive a separate registration card that lists your FilterPak registration number.

INSTALLING FRAME PRODUCTS FROM CD-ROM

These instructions describe how to:

- Load the CD-ROM
- Check whether the CD-ROM drive is mounted
- Mount the CD-ROM drive, if necessary
- Run the CD-ROM installation script to install Frame product files
- Troubleshoot the installation

You can install from a CD-ROM drive on your local system or from a remote system. If the CD-ROM drive isn't mounted, you must log in as root to mount it. Frame suggests, however, that you do not install files as root. If you need to log in as root to mount the drive, log out and log in under a different name before installing the files.

When you install from CD-ROM, you can install Frame products for all X/Motif platforms in the same installation directory at the same time. The CD-ROM installation script asks which platform-specific files you want to install. Choose files for all system models on your network from which users will run Frame products.

To use the commands provided in the following sections, open a UNIX window.

IMPORTANT: The commands in these instructions show the default device name for a CD-ROM drive. Device names may be different on your system. If you encounter problems, check your hardware reference manuals or ask your system administrator.

Loading the CD-ROM into the drive

Put the CD-ROM in a caddy and insert the caddy into the drive. (A caddy is a plastic case that holds the disk in the drive; each CD-ROM drive should have one.) Load the disc so the printed side is facing up. For detailed instructions, see your CD-ROM hardware manual.

IMPORTANT: If the disc is not in a caddy when you put it into the CD-ROM drive, both the disc and the drive can be damaged.

Checking for a /cdrom directory

Normally, the CD-ROM is mounted to the `/cdrom` directory. Check for this directory on your system.

If you don't find a `/cdrom` directory, create one now, and then skip to "Mounting the CD-ROM drive on a local system" on page 8 or "Mounting the CD-ROM drive from a remote system" on page 9.

If you do find a `/cdrom` directory, check whether the CD-ROM is mounted. See "Checking whether the CD-ROM drive is mounted," next.

Checking whether the CD-ROM drive is mounted

If the CD-ROM drive is not mounted, you will have to mount it before you can install the files. Determine if the drive has already been mounted by typing:

```
/etc/mount
```

You should see a list of mounted devices. The CD-ROM drive has already been mounted on your local system if a line similar to one of the following lines appears in the list.

Platform	Line
HP	`/cdrom on` *`device`* `readonly on` *`date`* where *`device`* depends on your system. Check your hardware reference manuals or ask your system administrator.
IBM	`/dev/cd0 on /cdrom` (In the mount table, CDROM appears in the "Mounted Over" column for this device.)
Solaris 2 SunOS 4	`/dev/sr0 on /cdrom`

The CD-ROM drive has been mounted from a remote system if a line similar the following one appears in the list (where *`host`* is the host name of the remote system):

`host``:/cdrom on /cdrom`

If the drive has not been mounted, see "Mounting the CD-ROM drive on a local system," next, or "Mounting the CD-ROM drive from a remote system" on page 9.

If the drive has been mounted, skip to "Running the CD-ROM installation script" on page 12.

Mounting the CD-ROM drive on a local system

To mount a CD-ROM drive, you must know your system's root password. If you don't know the password, contact your system administrator.

To mount the drive on a local system:

1 **Become the root user by typing:**
`su`

The system will request the root password.

2 **Type:**
`mkdir /cdrom`

3 **Type the mount command for your platform.**

Platform	Type this command
HP	`/etc/mount` *device* `/cdrom -r -t cdfs` where *device* depends on your system. Check your hardware reference manuals or ask your system administrator.
IBM	`/etc/mount -v 'cdrfs' -r '' /dev/cd0 /cdrom`
Solaris 2	`/etc/mount -F hsfs -r /dev/sr0 /cdrom`
SunOS 4	`/etc/mount -r -t hsfs /dev/sr0 /cdrom`

The `-r` option means that the drive is mounted as read-only. Use this option to prevent media error messages from appearing. The `-t` option specifies the CD-ROM type.

4 **Verify that the drive was mounted correctly by typing:**
`/etc/mount`

You should see a list of mounted devices, including the name of the drive you just mounted.

5 **To exit root, type:**
`exit`

You are no longer logged in as the root user. Now, go to "Running the CD-ROM installation script" on page 12.

Mounting the CD-ROM drive from a remote system

If the CD-ROM drive is attached to a remote system, first check whether it is listed in the exports file on the remote system, and add it if necessary. The exports file specifies directories that can be exported to local systems. Its path and filename differ depending on your platform.

After checking and correcting the exports file, you can mount the CD-ROM drive.

Checking the exports file

The remote CD-ROM drive must be listed in the exports file before it can be mounted. To check this file:

1 **Log in to the remote system as root.**

2 **Change to the appropriate directory for your platform.**

Platform	Type this command
HP	`cd /etc`
IBM	`cd /etc`
Solaris 2	`cd /etc/dfs`
SunOS 4	`cd /etc`

3 **List the exports file. Type the appropriate command for your platform.**

Platform	Type this command
HP	`ls exports`
IBM	`ls exports`
Solaris 2	`ls dfstab`
SunOS 4	`ls exports`

If you do not see the file listed, create the file and edit it as described in "Editing the exports file," next.

4 **Check the contents of the exports file for the following line:**

Platform	Check for this line
HP	`/cdrom -ro`
IBM	`/cdrom -ro`
Solaris 2	`share -F nfs -o ro /cdrom`
SunOS 4	`/cdrom -ro`

If you see this line, skip to "Mounting the CD-ROM" on page 11. If not, you need to add this line to the file. For instructions, see "Editing the exports file," next.

Editing the exports file

Using any text editor, edit the exports file by adding the following line as the last line of the file:

Platform	Add this line
HP	`/cdrom -ro`
IBM	`/cdrom -ro`
Solaris 2	`share -F nfs -o ro /cdrom`
SunOS 4	`/cdrom -ro`

If the file does not exist, create it and add this line.

To load the exports file, type the load command for your platform.

Platform	Type this command
HP	The file is loaded automatically; to check for it, type: `/usr/etc/showmount -e`
IBM	`/usr/etc/exportfs -a`
Solaris 2	`shareall`
SunOS 4	`/usr/etc/exportfs -a`

Mounting the CD-ROM

Follow these steps to mount the CD-ROM:

1 **On the remote system, type the mount command for your platform.**

Platform	Type this command
HP	`/etc/mount` *`device`* `/cdrom -r -t cdfs` where *`device`* depends on your system. Check your hardware reference manuals or ask your system administrator.
IBM	`/etc/mount -v 'cdrfs' -z '' /dev/cd0 /cdrom`
Solaris 2	`/etc/mount -F hsfs -r /dev/sr0 /cdrom`
SunOS 4	`/etc/mount -r -t hsfs /dev/sr0 /cdrom`

The `-r` option means that the drive is mounted as read-only. Use this option to prevent media error messages from appearing. The `-t` or `-v` option specifies the CD-ROM type.

2 **Exit root on the remote system by typing:**
`exit`

3 **Log in as the root user on your local system.**
The system will request you to type the root password. If you don't know the password, contact your system administrator.

4 **Type:**
`/etc/mount` *`host`*`:/cdrom /cdrom`

where *`host`* is the name of the remote system.

5 **Exit root by typing:**
`exit`

Running the CD-ROM installation script

You must run the installation script directly on the CD-ROM.

1 **To change to the CD-ROM directory, type:**

```
cd /cdrom
```

2 **Type the CD-ROM installation command for your platform:**

Platform	Type this command
HP	`./"READ.CD;1"` Type the command exactly as shown, including the quotation marks.
IBM	`./read.cd`
Solaris 2 SunOS 4	`./read.cd`

The CD-ROM installation script asks you for the Frame product installation directory and which files to install. It then installs the corresponding files into *`install_dir`*. To install the Frame product files, read the instructions provided by the CD-ROM installation script and answer the questions.

IMPORTANT: You cannot install the current versions of Frame products in the same directory as earlier versions.

Troubleshooting the CD-ROM installation

If you receive an error message such as "can't access the machine" when you try to mount the CD-ROM, check that:

- You placed the disc in a CD caddy before you put it into the CD-ROM drive
- You loaded the disc with printed side facing up
- You closed the caddy

INSTALLING FRAME PRODUCTS FROM TAPE

Because of differences in tape formats, you must install Frame products for a particular platform from that platform. For example, you must install Frame products for HP systems from an HP system, and you must install Frame products for Sun systems from a Sun system.

You can install X/Motif versions of Frame products for all platforms in a shared installation directory on the same file server. When you install on the first platform, install the product files, demonstration files, dictionary and thesaurus files, font files, and FilterPak files and FDK files (if you purchased FilterPak and FDK). When you install on subsequent platforms, install only the product, FilterPak, and FDK files.

These instructions describe how to:

- Prepare to install
- Copy the `readtape` script to your installation directory
- Run the `readtape` script to install Frame product files

Preparing to install

To prepare for the installation:

1 **Open a UNIX window.**

2 **Put the tape in the tape drive.**
You can install from a local or a remote tape drive.

3 **Change to the Frame product directory (*`install_dir`*).**
For more information about this directory, see "Creating a Frame product directory" on page 2.

Extracting the readtape script from the tape

The tape is divided into two sections: the first part contains the `readtape` script and a few supporting files; the second part contains the rest of the Frame product files. You use the `tar` command to extract the first portion of the tape, including the `readtape` script, into the Frame product directory (*`install_dir`*).

You can use a local tape drive connected to the system you are using or a remote[1] tape drive connected to another system on your network. In both cases, you must specify a "no rewind" device.

IMPORTANT: These instructions use the default device names. You may need to use a different name. If you have problems extracting the script, check your operating system hardware reference manual or ask your system administrator for the correct device names for your system. If the device has a "no rewind" name, you must use it.

Extracting the script from a local tape drive

To read the first part of the tape from a local tape drive, use one of the following commands:

Platform and Media	Command
HP 4mm DDS	`tar -xf /dev/rmt/0mn`
IBM 1/4" tape	`tar -xf /dev/rmt0.1`
Solaris 2 SunOS 4 1/4" tape	`tar -xf /dev/nrst8`

Extracting the script from a remote tape drive

To read the first part of the tape from a remote tape drive, use one of the following commands, where *host* is the name of the remote system. Type the full command on a single line.

Platform and Media	Command
HP 4mm DDS	`remsh host -n dd if=/dev/rmt/0mn bs=20b | tar -xf -`
IBM 1/4" tape	`rsh host -n dd if=/dev/rmt0.1 bs=20b|tar -xBf -`
Solaris 2 SunOS 4 1/4" tape	`rsh host -n dd if=/dev/nrst8 bs=20b | tar -xf -`

---

1. Make sure you have access privileges to the remote system.

IMPORTANT: The local system that you are using must have access permissions for the remote host to which the tape drive is connected. These permissions are set in the files `/etc/hosts.equiv` or `$HOME/.rhosts` on the remote host.

Running the installation script

To install the Frame product files, make sure you are still in the Frame product directory (*`install_dir`*), and then run the `readtape` script.

Type the following command:
`./readtape`

The `readtape` script asks you which options you want to install and reads the corresponding files from the tape into *`install_dir`*. To install the Frame product files, read the instructions provided by the `readtape` script and answer the questions.

NOTE: If you decide later to install options you excluded this time, just put the tape in the tape drive, change to *`install_dir`*, and run the `readtape` script again.

CHECKING THE INSTALLATION

After the installation script copies the Frame product files to *`install_dir`*, you can use the `fmcheckinstall` script to check the installation.

1 **Make sure you're in *`install_dir`*.**
`cd install_dir`

2 **To run the `fmcheckinstall` script, type:**
`bin/fmcheckinstall`

The script verifies the files you installed and reports missing, misread, or modified files. It can take as long as an hour or more to verify a full installation.

COPYING FRAME PRODUCT FILES

If you need to copy the Frame product directory and its subdirectories from one location to another, use the `fmcopy` shell script located in *`install_dir`*`/bin`. To see instructions for using this script, change to *`install_dir`*`/bin` and type `./fmcopy` in a UNIX window.

IMPORTANT: Do *not* use the UNIX `cp -r` command; `fmcopy` copies the correct file permissions and symbolic links.

WHERE TO GO FROM HERE

To complete the installation, set up each user's environment for Frame products. If you are installing a licensed version of a Frame product, also set up licenses.

2 SETTING UP ENVIRONMENTS

Frame suggests that you change each user's path so the user can start Frame products from any directory. The easiest way to do this is to run the `fmusersetup` script provided with Frame products. You can run this script for each user, or you can instruct users to run it on their own. This chapter describes how to run `fmusersetup` and explains the changes that it makes.

If don't want to run `fmusersetup`, you can manually change a user's path for Frame products. Because this process is more complicated, you might want to do it for each user.

If you choose not to change paths, users must supply full pathnames or change to `$FMHOME` to start Frame products. To make starting Frame products easier for users whose paths are not changed, you can rename the Frame product commands.

You can use any one of these three methods for setting up environments. This chapter describes how to:

- Run the `fmusersetup` script
- Manually change a user's path
- Rename Frame product commands

IMPORTANT: To set up environments for HP VUE users, refer to the instructions in the `$HOME/.vueprofile` file.

USING THE FMUSERSETUP SCRIPT

The `fmusersetup` script changes the user's path and defines the environment variable `$FMHOME` (the directory in which you installed Frame products). It also adds execute permission to the user's home directory (for printing).

Running fmusersetup

Give each user the following instructions for running `fmusersetup`.

To set up your environment using `fmusersetup`:

1. **Change to the Frame product installation directory.**
   For example, if Frame products are installed in `/usr/frame`, type:
   `cd /usr/frame`
2. **Run the `fmusersetup` script by typing:**
   `./fmusersetup`
3. **Answer the questions the script asks.**
   The `fmusersetup` script changes your path and defines the `$FMHOME` environment variable.
4. **Log out and log in again.**
   You must do this for the changes to take effect.
5. **Start a Frame product by typing the appropriate command from any directory.**
   For Frame product commands, see Chapter 4, "Starting Frame Products."

Running fmusersetup as root

If you choose to run `fmusersetup` as root, make sure the `HOME` environment variable is set to the root directory of the machine on which Frame products are installed.

If you are using the C shell, type the following command:

```
setenv HOME /
```

If you are using the Bourne shell or Korn shell, type:

```
HOME=/
export HOME
```

Run `fmusersetup` as described above.

Making corrections for absolute paths

The `fmusersetup` script changes the path by editing the `.login` or `.profile` file. It assumes that the path statement is defined by the environment variable `$path`, and it redefines this variable.

If the path assignment statement is defined absolutely, you must edit the file after `fmusersetup` changes it. (The path is defined absolutely if the path statement doesn't have the environment variable `$path` on the right side of the equal sign. It has pathnames instead.)

To correct the file, you must move the lines that `fmusersetup` added so that they occur after the path assignment statement.

If you are using the C shell, the `path` line must precede the `set FMHOME` line. For example:

```
set path=(install_dir/bin $path)
setenv FMHOME install_dir
```

If you are using the Bourne or Korn shell, the `PATH` line must precede the `FMHOME` line. For example:

```
PATH=install_dir/bin:$PATH; export PATH
FMHOME=install_dir; export FMHOME
```

For *install_dir*, substitute the name of the directory in which you installed Frame products.

IMPORTANT: To set up environments for HP VUE users, refer to the instructions in the `$HOME/.vueprofile` file.

SETTING A USER'S ENVIRONMENT WITHOUT FMUSERSETUP

To set up a user's environment without running `fmusersetup`:

1 **Define `$FMHOME`.**

You can set `$FMHOME` to *install_dir* in the `.login` or `.profile` file and then use `$FMHOME` to represent the Frame product installation directory when you change the user's path.

To do this, add the following line to the `.login` file:

```
setenv FMHOME install_dir
```

or add this line to the `.profile` file:

```
FMHOME=install_dir;export FMHOME
```

Substitute the name of your installation directory for *install_dir*.

2 **Modify the user's path.**
If you use the C shell as your login shell, change the `.login` file. If you use the Bourne or Korn shell as your login shell, change the `.profile` file.

To set the correct path in the `.login` file, add this line:
`set path=(`*install_dir*`/bin $path)`

To set the correct path in the `.profile` file, add this line:
`PATH=:`*install_dir*`/bin:$PATH; export PATH`

Substitute the name of your installation directory for *install_dir*.

3 **Instruct the user to log out and log in again.**
Users must do this for the changes to take effect.

RENAMING FRAME PRODUCT COMMANDS

If you don't want to change paths, you can rename Frame product commands to make it easier for users to start Frame products. Rename the Frame product commands by creating an alias shell script that refers to the full pathname for the command.

For instructions on starting different versions of Frame products, see "Starting the Frame product" on page 43.

IMPORTANT: Do not rename the actual Frame product files.

Creating an alias

An alias is a shorter command that represents the full pathname for a Frame product. To set up an alias, you must have a UNIX shell that supports aliases.

The following examples show how to create a new command, `frame`, for starting the US English version of FrameMaker. In all of the examples, substitute the name of your installation directory for *install_dir*.

If you are using the C shell, use the following command to define the alias in the `.login` file:

```
alias frame install_dir/bin/maker
```

If you are using the Korn shell, use the following command:

```
alias frame='install_dir/bin/maker'
```

If you are using the Bourne shell, use the following commands to define an alias in the `.profile` file:

```
frame()
{
install_dir/bin/maker
}
```

Creating a script

You could also place a script that starts a Frame product in a directory that is already in the user's path. For example:

```
#!/bin/sh
case $# in
0) exec install_dir/bin/maker;;
*) exec install_dir/bin/maker "$@" ;;
esac
```

USING $FMHOME

The remaining instructions in this manual assume that you've defined `$FMHOME` to be the Frame product installation directory (*install_dir*). If you haven't defined this variable, type the installation directory's full pathname whenever you see `$FMHOME` in a UNIX command.

INTEGRATING FRAME PRODUCTS WITH DESKTOP ENVIRONMENTS

Frame provides special setup files and programs to integrate Frame products with several desktop environments. Desktop integration lets you use standard procedures to work with Frame product files. For example, you might double-click a document icon to start a Frame product. For more information about integrating Frame products with your specific desktop environment, see the online *Release Notes*.

3 SETTING UP LICENSES

This chapter describes how to set up licenses, get reports on license usage, and troubleshoot licensing problems. If you are installing a demonstration version of a Frame product, you can skip this chapter.

IMPORTANT: Previous versions of Frame products used a different form of licensing. If you have an earlier release of a Frame product, you cannot use your old licenses. You must set up new licenses.

LICENSING BASICS

When you start a Frame product, it searches for a license that allows you to run the product. Without a license, you can run only a demonstration version. When you purchase a Frame product, your Frame sales representative helps you determine the appropriate number and type of licenses for your site.

License types

Frame provides different license types, so you can choose the one that is most appropriate for your site. You can also add licenses at any time.

Personal licenses

A personal license allows a single person to use a Frame product. When you set up licensing, you must assign a user name to each personal license. A licensed user can use the Frame product from any workstation on your network.

Shared licenses

Shared licenses allow several users to use a Frame product. Each shared license allows a certain number of users simultaneously. As long as the number of users is not greater than the license limit, users automatically get licenses when they start the product. When the number of users equals the license limit, additional users won't be able to get a license. For example, if you have a shared license that allows 20 users, the first 20 users automatically obtain licenses. After that, other users won't be able to get licenses until one of the original 20 users makes a license available.

Reserved licenses

You can reserve a shared license for a specific user. When you reserve a license, it acts as a personal license. You assign the license to a user name, and only the assigned user can use the license. It is no longer available to be shared with others.

For example, you might have a group of 20 people. Half are writers and use the product regularly. The others use it only occasionally. You could purchase a shared license that allows licenses for 15 users and reserve 10 licenses for the writers. The other users would share the remaining 5 licenses.

Network requirements for shared licenses

Frame supports shared licenses in a local area network (LAN) environment. Licenses cannot be shared across a wide area network (WAN). Frame distinguishes between a LAN and a WAN by requiring that all machines on a LAN reside within the same building. In addition, to support shared licensing, a LAN must maintain a reasonable level of performance at all times. As a guideline, if the LAN is used for the Sun Network File System (NFS), it is likely to meet the requirement for reasonable performance. If your network does not meet this definition of a LAN, you must use personal licenses.

License passwords

Your Frame product package contains a registration card or a separate sheet that includes the password for licenses you have purchased. You use this information to set up licensing.

IMPORTANT: Make copies of your licensing information and store them in a safe place. If your licensing files become damaged, you must recreate them from the original information.

Licenses file

You set up licenses by using a Frame program to record license passwords in the `licenses` file.

If you are setting up shared licenses, create the `licenses` file on a system that all users can use, for example, a file server. You can set up a single `licenses` file in `$FMHOME/fminit`, or you can create separate `licenses` files for work groups. See "Setting up work groups for shared licenses" on page 26.

If you are setting up personal licenses, you create a shared `licenses` file in `$FMHOME/fminit`, or you can create individual `licenses` files in an `fminit` subdirectory of each user's home directory (`~/fminit`). A central `licenses` file is easier to manage if you have several users. If you have just a few users, you might want to have them manage their own personal `licenses` files.

SETTING UP SHARED LICENSES

If you are installing shared licenses, you must designate a system as the license server host. The programs that allow users to share licenses run on this system. The license server host can be the system on which you installed the Frame product or any other system on your network.

Setting up work groups for shared licenses

If you purchased several sets of group licenses (for example, one set of 10 licenses and another set of 20 licenses), you can choose to install each set of licenses as a separate work group. Each work group has its own license server, `licenses` file, and other supporting licensing files.

Multiple work groups make it easier to manage a Frame product installation. For example, you can set up one work group for an Engineering department, another for Finance, and a third for Marketing. Such work groups let you control access to Frame products for each department. In addition, you can purchase different Frame products for each work group. For example, the Marketing department might require International FrameMaker while the other departments might not.

You can also set up several work groups to which all users have access. Doing this gives you several license servers instead of just one. If there is a problem with one of the license servers, users can get licenses from another one.

When you have multiple work groups, you install the licensing information for each work group in a separate directory. You use standard UNIX permissions to control access to work-group licensing files.

Setting up license servers

You use the `fmsetupfls` program to set up the license server. Run this program for each work group that you want to create.

IMPORTANT: You must run `fmsetupfls` on the license server host.

To run `fmsetupfls`:

1 **Start the script by typing:**
`$FMHOME/bin/fmsetupfls` *`workgroup_dir`*

where *`workgroup_dir`* is the full pathname for the work group directory. The licensing files are stored in this directory. If you are setting up a work group, specify a directory to which all members of that work group have read and execute permission.

If you are setting up a single `licenses` file for all users at your site in the Frame product installation directory (`$FMHOME`), omit the directory name from this command. The files are stored in `$FMHOME/fminit`.

2 **The `fmsetupfls` script starts the `fmaddlicense` program.**
Use `fmaddlicense` to enter the information on your registration card (or other licensing sheet) into the `licenses` file. For instructions, see "Using the fmaddlicense program" on page 29.

3 **When you finish entering the licensing information, exit `fmaddlicense`.**
For instructions, see "Exiting fmaddlicense" on page 32. The `fmsetupfls` script continues.

4 **Provide the information that the script requests.**
The script creates the scripts that control shared licenses on your network. It stores these scripts in the directory you specified when you started `fmsetupfls`. It also asks where you want to store log files that the license server process creates. For more information, see "How licensing works" on page 32.

Setting up environments for work groups

After you set up licenses in work groups, you need to adjust each user's environment so the necessary environment variables are set correctly. If you set up a single, central `licenses` file in `$FMHOME/fminit`, you can skip this step.

1 **Create an `fminit` directory in each user's home directory.**

2 **Change to that directory.**

3 **Create a symbolic link to the work group's `env.sh` file using the following command:**

```
ln -s workgroup_dir/env.sh env.sh
```

where *`workgroup_dir`* is the work group directory you specified when you started `fmsetupfls`.

SETTING UP PERSONAL LICENSES

You set up personal licenses by entering the information on your registration card (or other licensing sheet) into the `licenses` file. You can enter personal licensing information for multiple users in a central `licenses` file in `$FMHOME`, or you can enter each user's licensing information in a personal `licenses` file in the user's home directory.

Setting up a central licenses file

To set up a central `licenses` file in `$FMHOME`:

1 **Start the `fmaddlicense` program with this command:**
`$FMHOME/bin/fmaddlicense $FMHOME/fminit/licenses`

2 **Use `fmaddlicense` to enter the information on your registration card (or other licensing sheet) into the `licenses` file.**
For instructions, see "Using the fmaddlicense program" on page 29. The `fmaddlicense` program records licensing information in `$FMHOME/fminit/licenses`. You can set up several personal licenses in this file.

Setting up a personal licenses file

To set up a personal `licenses` file in your home directory:

1 **Change to your home directory with this command:**
`cd`

2 **Create a personal `fminit` directory with this command:**
`mkdir fminit`

3 **Start the `fmaddlicense` program with this command:**
`$FMHOME/bin/fmaddlicense`

4 **Use `fmaddlicense` to enter the information on your registration card (or other licensing sheet) into the `licenses` file.**
For instructions, see "Using the fmaddlicense program," next. The `fmaddlicense` program records licensing information in `$HOME/fminit/licenses`. Enter licensing information for one user only.

USING THE FMADDLICENSE PROGRAM

The `fmaddlicense` program is your tool for adding and administering licenses.

The first time you add a license, `fmaddlicense` also asks you to enter the name of the license owner. Enter your company or organization name.

IMPORTANT: You cannot change the company or organization name later. If you do, you won't be able to use the `licenses` file.

To run `fmaddlicense`:

1 **In a UNIX window, type:**
`$FMHOME/bin/fmaddlicense`

The `fmaddlicense` prompt appears:
`fmaddlicense->`

2 **Use `fmaddlicense` by typing commands at the prompt and pressing Return.**
The rest of this section explains `fmaddlicense` commands.

Getting help

For a list of `fmaddlicense` commands, type `help` or `?`. You see a list of `fmaddlicense` commands. Parameters in brackets are optional.

Adding licenses

Use the `fmaddlicense` add command to add shared and personal licenses.

- **To add a shared license, type the following command:**
`add` *`license_password`*

where *`license_password`* is the license password on your registration card (or other licensing sheet). If the password is not a valid shared license password, `fmaddlicense` warns you. Make sure that you entered the password correctly.

- **To add a personal license, type the following command:**
  `add license_password user_name`

  where *license_password* is the license password on your registration card (or other licensing sheet), and *user_name* is the user name of the user who will own the license.

  The `fmaddlicense` program checks that you entered the license password correctly and then records the information in the `licenses` file.

Listing licenses

To verify the licenses you added, you can list them.

- **To list licenses in the licenses file, type:**
  `list`

  For each license, `fmaddlicense` reports the product, the license type, and the license password. It also reports the user names assigned to personal licenses and reserved shared licenses. For example:

```
License    Maker        Personal     01-01-3-12345-123456
Assigned to:            celia
License    Imaker       Shared       01-01-3-12345-987654
Assigned to:            julie  sam   josh  jose
```

The list command also reports the owner of the licenses and the timeout interval for shared licenses. For information about the timeout interval, see "Setting the timeout interval for shared licenses" on page 31.

Reserving licenses

To reserve one of your shared licenses for a specific user:

1. **Add the shared license.**
   See "Adding licenses" on page 29.

2. **Type the following command:**
   `reserve license_password user_name`

   where *user_name* is the user name. To reserve licenses for several users, type all of the names in the command, separating them with spaces. For example:
   `reserve 01-01-3-12345-987654 julie sam josh jose`

To remove all reserved users from a license:

- **Type the following command:**
  `reserve license_password`

Removing and reassigning licenses

You must delete a license before moving it to a different `licenses` file. You cannot use the same license in two `licenses` files.

- **To remove a license from your license file, type:**
  `delete license_number`

You must also delete a personal license to reassign it to a different user. First, delete the license, and then add the license to the file again, assigning it to the new user. See "Adding licenses" on page 29.

IMPORTANT: You must enter the information from the original registration card (or other licensing sheet) when you reassign a license.

Setting the timeout interval for shared licenses

Shared licenses have a timeout interval. If all licenses are in use and an additional user attempts to get a license, the license process checks for a license that hasn't been used for this length of time. If it finds one, the original user loses that license, and the new user gets it. Any unsaved work can be saved before the license is reassigned. In this way, licenses that aren't actually being used are made available to other users.

You can set the default timeout interval in the `licenses` file. You specify the timeout interval in hours. The default timeout interval is 999 hours.

To change the timeout interval, type the following command:
`timeout hours`

where *hours* is the length of the timeout interval in hours. The minimum timeout interval is one hour. There is no maximum interval.

Exiting fmaddlicense

To exit the `fmaddlicense` program:

- **Type the following command:**
  `done`

Registering the product

When you exit, `fmaddlicense` asks if you want to run the registration script. This script records registration information and sends it to Frame electronically. This is the quickest and easiest way to register your product if you are connected to the Internet network. If you aren't connected to the Internet, fill in the printed registration form that you received with the product and mail it to Frame.

HOW LICENSING WORKS

This section gives more detailed information about licensing and how it works.

Licensing files, scripts, programs, and variables

The `fmsetupfls` script creates the scripts that control shared licenses on your network. If you set up a single work group for shared licenses, these files are in `$FMHOME/fminit`. If you set up several work groups, these files are in each work group directory.

fm_fls_auto script

Frame products use the `fm_fls_auto` script to start the Frame license server program, `fm_fls`, on the license server host when it isn't already running.

To start the license server process automatically whenever the license server host starts, add the following line to the server's startup file (for example, the `/etc/rc.local` file):

(*workgroup_dir*`/fm_fls_auto` `` `*hostname*` ``) `>/dev/console`

where *hostname* is the license server name and *workgroup_dir* is the work group directory you specified when you set up shared licenses.

If you set up licenses in a single, central directory, *workgroup_dir* is `$FMHOME/fminit`.

env.sh and env.csh scripts

The `fmsetupfls` program creates `env.sh` and `env.csh` in `$FMHOME/fminit`, or updates them if they already exist. These scripts set the values of the licensing environment variables, `$FM_FLS_HOST` and `$FM_FLS_AUTO`. Frame products use `env.sh` to look up the values of these variables. There are sample scripts in the files `$FMHOME/fminit/env.sh.ex` and `$FMHOME/fminit/env.csh.ex`.

$FM_FLS_HOST environment variable

`$FM_FLS_HOST` contains the name of the license server host. When it starts, a Frame product runs `$HOME/fminit/env.sh` and `$FMHOME/fminit/env.sh` to look up the values of `$FM_FLS_HOST` and `$FM_FLS_AUTO`. If the Frame product can't find a value for `$FM_FLS_HOST`, it assumes licenses are not set up and prints a warning message.

$FM_FLS_AUTO environment variable

The `env.sh` or `env.csh` script automatically sets `$FM_FLS_AUTO` to the pathname of the `fm_fls_auto` script that starts the license server process. Frame products run `fm_fls_auto` when they can't communicate with the license server process on the license server host. If this variable is not set, Frame products cannot start the license server process automatically.

fm_fls program

The `fm_fls` program runs the license server process on the license server host. This process must be running for users to obtain shared licenses.

fm_flb program

When a Frame program starts, it runs the `fm_flb` program on the host on which it was started. The `fm_flb` program periodically exchanges licensing information with the `fm_fls` program running on the license server host. If there is more than one Frame product running on a host, all products share one `fm_flb` program. The `fm_flb` program remains running for up to one hour after the Frame product quits.

fm_fls.log file

The `fm_fls` program stores information about license usage in the `fm_fls.log` file. When you run `fmsetupfls` to set up license servers, you can specify the directory in which to store this file. Otherwise, it is stored in `$FMHOME/fminit/tmp`. You can use the `fmreport` program to display the contents of the log file. For more information, see "Generating license reports" on page 35.

What happens when you start a Frame product

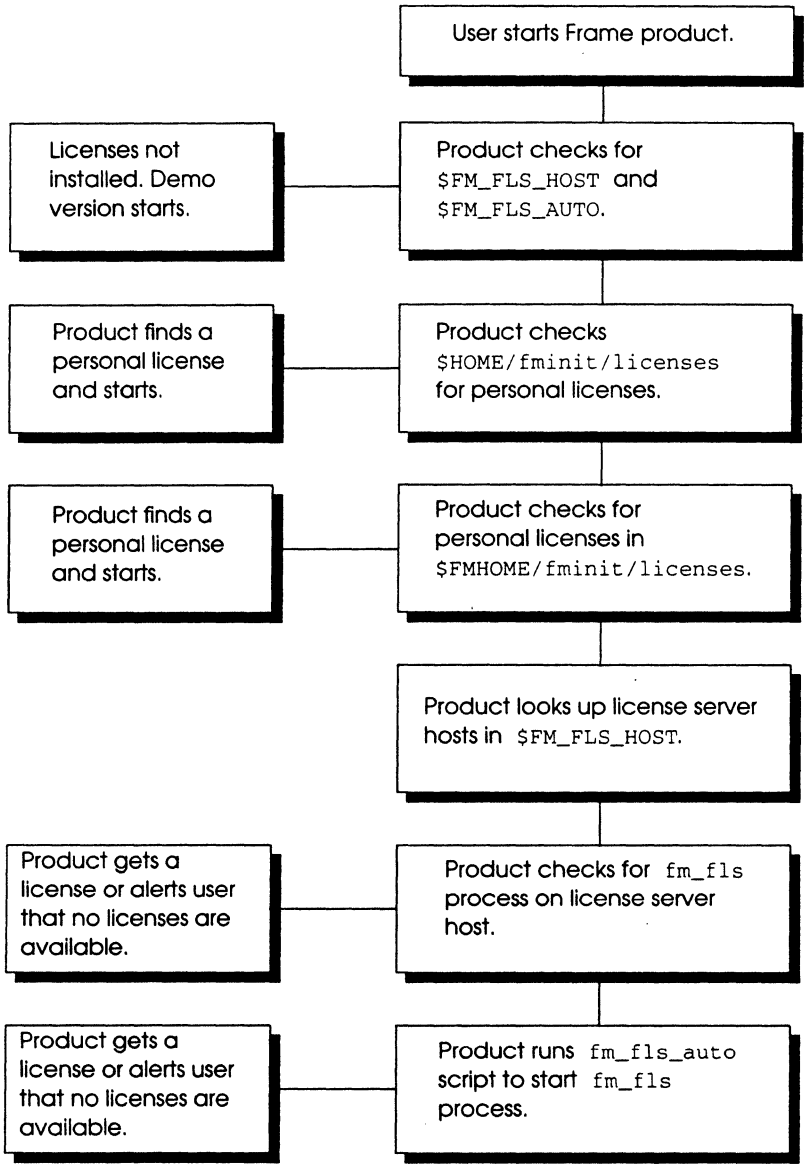
When you start a Frame product, it looks first for the licensing environment variables, `$FM_FLS_HOST` and `$FM_FLS_AUTO`. If they are not set, it displays a message telling you that licensing is not installed and asks if you want to run a demonstration version of the product. If the product finds the environment variables, it searches for a `licenses` file in `$HOME/fminit` and then in `$FMHOME/fminit`. If it finds a personal license, it starts immediately.

If it does not find a personal license, the product checks for a shared license. It looks up the license server in the environment variable `$FM_FLS_HOST`. If this variable hasn't been defined in the user's environment, the product looks for the script `env.sh` in `$HOME/fminit` and `$FMHOME/fminit`. If the product finds `env.sh` in any of the `fminit` directories, then it sources `env.sh` to set the necessary environment variables. If the product can't find `env.sh`, then `$FM_FLS_HOST` and `$FM_FLS_AUTO` are not set. When `$FM_FLS_HOST` is not set, the product tries to get a license from `localhost`. When `$FM_FLS_AUTO` is not set, the product is unable to start the license server process automatically.

When the product obtains the name of the license server host from `$FM_FLS_HOST`, it requests a license from the license server process, `fm_fls`, running on that host. If the license server process does not respond, the product runs the `fm_fls_auto` script to start the license server process.

The license server process either assigns a license or notifies the product that no licenses are available. When the product fails to obtain a license, it displays a dialog box that lets you quit. You can try to get a license from a different license server host, or you can run a demonstration version.

The following chart shows what happens when you start a Frame product.


User starts Frame product.
Licenses not installed. Demo version starts.
Product checks for $FM_FLS_HOST and $FM_FLS_AUTO.
Product finds a personal license and starts.
Product checks $HOME/fminit/licenses for personal licenses.
Product finds a personal license and starts.
Product checks for personal licenses in $FMHOME/fminit/licenses.
Product looks up license server hosts in $FM_FLS_HOST.
Product gets a license or alerts user that no licenses are available.
Product checks for fm_fls process on license server host.
Product gets a license or alerts user that no licenses are available.
Product runs fm_fls_auto script to start fm_fls process.

GENERATING LICENSE REPORTS

The license server process (`fm_fls`) keeps a log of license activity in a file named `fm_fls.log` (see "fm_fls.log file" on page 34). You can use the `fmreport` program to retrieve licensing information from each of the license server hosts and format it into a report.

To generate a license report, type the following command in a UNIX window:

`fmreport -product` *`product`* `-vendor` *`vendor log_file`*

The command-line options are described in the following table.

Option	Meaning
`-product` *`product`*	Instructs `fmreport` to report license usage for a specific product only. Substitute the name of the command you use to start the product for *`product`*—for example, `maker` or `builder`. For a list of products and the commands to start them, see Chapter 4, "Starting Frame Products." This part of the command is optional. If you do not specify a product name, `fmreport` reports licensing information for all products.
`-vendor` *`vendor`*	Instructs `fmreport` to report license usage for products acquired from a specific vendor only. Substitute the vendor name for *`vendor`*—for example, `frame`. This part of the command is optional. If you do not specify a vendor, `fmreport` reports licensing information for all vendors.
`log_file`	Specifies the pathname for the `fm_fls.log` file from which you want to generate the report. This part of the command is required.

The `fmreport` program writes the report to the UNIX window. The report tells you:

- The number of times and when the license server was started
- The number of times the license server detected illegal license use, the name of the illegal user, and the date and time
- The length of time and time of day of the shortest and longest license use

For each product and vendor, it also provides a daily log of the number of shared licenses used simultaneously and the number of times a user tried to get a license but couldn't (because none were available). You can use this information to determine whether you need additional licenses.

The following example shows a report for FrameMaker licenses:

```
fmreport generated Tue Jan 26 02:12:43 1993
from /usr/skye/workgroups/guest/fm_fls.log
License server starts: 1

     1993/01/21-15:50:11 on host skye from /usr/skye/workgroups/guest/licenses

Clashes detected: 2
     1993/01/22-10:48:43 tnn@slug
     1993/01/25-14:42:43 hpdemo@scorpio

Shortest license usage: 02:21:53 at 1993/01/22-10:52:35 by lxm

Longest license usage: 1 day 01:54:42 at 1993/01/22-11:24:04 by pjl
product = maker
vendor = ALL

--------------------------------------------------------------------------------
Number of floating licenses in use:

YY/MM/DD 00-02 02-04 04-06 06-08 08-10 10-12 12-14 14-16 16-18 18-20 20-22 22-24
93/01/21   0     0     0     0     0     0     0     1     1     1     1     1
93/01/22   1     1     1     1     1     2     2     2     1     1     0     0
93/01/23   0     0     0     0     0     0     1     0     0     0     0     0
93/01/25   0     0     0     0     0     0     1     1     1     1     0     0
--------------------------------------------------------------------------------
Number of users denied floating licenses:

YY/MM/DD 00-02 02-04 04-06 06-08 08-10 10-12 12-14 14-16 16-18 18-20 20-22 22-24
93/01/22   0     0     0     0     0     4     5     1     0     0     0     0
93/01/25   0     0     0     0     0     0     0     1     0     0     0     0
--------------------------------------------------------------------------------
```

TROUBLESHOOTING LICENSING

This section describes some problems that may occur with licensing and suggests solutions.

Displaying licensing messages

If you are having problems with licensing, you can instruct the Frame product to display additional messages as it attempts to start. To do this, add the `-nlverbose` command-line option to the command you use to start the product. For example:

```
builder -nlverbose
```

For a complete list of commands for starting Frame products, see Chapter 4, "Starting Frame Products."

Specifying personal or shared licenses

If you have both personal and shared licenses installed on your network, you can specify which type of license you want the Frame product to use. If the product cannot obtain that type of license, it starts a demonstration version.

To specify a personal license, add the `-personalLicensing` command-line option to the command you use to start the product. For example:

```
builder -personalLicensing
```

To specify a shared license, add the `-sharedLicensing` command-line option to the command you use to start the product. For example:

```
builder -sharedLicensing
```

Using this command-line option does not prevent you from obtaining a personal license. Frame products always check for personal licenses first. To disable personal licenses, you must move the personal `licenses` file from `$HOME/fminit` or `$FMHOME/fminit`.

For a complete list of commands for starting Frame products, see Chapter 4, "Starting Frame Products."

The Frame product reports that there are no licenses

This problem occurs when the Frame product cannot find the `licenses` file in `$HOME/fminit`, in `$FMHOME/fminit`, or in the work group directory. It asks if you want to run a demonstration version.

You might not have set up the `licenses` file, or it might have been unintentionally removed. Use the information on your registration card (or other licensing sheet) and the `fmaddlicense` program to create the `licenses` file.

The Frame product reports that the license server failed

The product reports that the server failed or that it was unable to open the `licenses` file if you changed the owner name in the `licenses` file. Do not change this name after entering it with `fmaddlicense`. For more information, see "Using the fmaddlicense program" on page 29.

The Frame product cannot communicate with the license server

If the message "Having trouble communicating with the license server" appears in a UNIX window, the license server process probably isn't running on the host you specified. First, make sure the license server host specified in the License dialog box is correct. Then follow these instructions:

1 **If your workstation is the license server host, change the name of the license server host in the License dialog box to `localhost` and try to get a license again.**
If the license server host is a remote host, or if step 1 doesn't solve the problem, continue with the instructions below.

2 **In a UNIX window, log in to the license server host (using the `rlogin`, `rsh`, or `remsh` command if the host is remote).**

3 **Type the command for your platform to make sure the Port Mapper is running:**

Platform	Command
HP	`ps -e | grep portmap`
IBM	`ps -e | grep portmap`
Solaris 2	`ps -e | grep rpcbind`
SunOS 4	`ps axww | grep portmap`

If the Port Mapper is running, you should see a message similar to one of the following lines.

Platform	Line
HP	`51 ? 3:39 portmap`
IBM	`51 - 3:39 portmap`
Solaris 2	`51 ? 3:39 rpcbind`
SunOS 4	`51 ? IW 3:39 portmap`

4 **If the Port Mapper isn't running, type the correct command for your platform to start it:**

Platform	Command
HP	`/etc/portmap &`
IBM	`/usr/sbin/portmap &`
Solaris 2	`/usr/sbin/rpcbind &`
SunOS 4	`/usr/etc/portmap &`

You may need to be logged in as root to run the Port Mapper.

5 **Type the correct command for your platform to find out whether the license server process is running:**

Platform	Command
HP	`ps -ea | grep fm_fls`
IBM	`ps -ea | grep fm_fls`
Solaris 2	`ps -ea | grep fm_fls`
SunOS 4	`ps axww | grep fm_fls`

If the process is running, you'll see a license server process named `fm_fls`. See "The license server process is running, but you cannot get a license," next.

6 **If the process isn't running, use the following command to restart the license server process.**

`$FMHOME/bin/fm_fls` *`licenses_file`*

where *`licenses_file`* is the full pathname to the `licenses` file you want to use.

Messages appear in a UNIX window indicating that the license server process is initializing. If the process still doesn't start, write down the error messages that appear and contact your Frame technical support representative.

7 **Try to get a license again.**

If you still can't get a license, contact your Frame technical support representative.

The license server process is running, but you cannot get a license

If the license server process is running, there are several reasons why you might be unable to obtain a license:

- There are no licenses available.
- The license server host name that you typed in the License dialog box was incorrect.
- The date on your workstation is different from the date on the license server host. (If the difference is four hours or less, you should be able to obtain a license. If the difference is between four and eight hours, you may be able to obtain a license. If the difference is more than eight hours, you won't be able to obtain a license.)

Manually starting the license server

If the license server (`fm_fls`) doesn't start automatically, you can start it by typing the following command in a UNIX window:
`$FMHOME/bin/fm_fls` *`licenses_file`*

where *`licenses_file`* is the full pathname to the `licenses` file you want to use.

The license server process detects a duplicate license

If the license server process detects two users with the same license, both users receive a notice. The product allows the user who obtained the license last to save documents and then quits. The user who obtained the license first keeps the license.

Each license (each individual license within a shared license) allows only one user to use a Frame product. If you set up licensing as described in this chapter, two users won't be able to obtain the same license.

4 STARTING FRAME PRODUCTS

This chapter describes how to start the demonstration and licensed versions of Frame products and how to run Frame products on a remote workstation or server.

While running the demonstration version, you can use all of the Frame product's features except the Save command.

STARTING THE FRAME PRODUCT

To start a Frame product, type one of the commands on the next page in a UNIX window, where *language* represents a user-interface language, for example, `deutsch`, `francais`, or `svenska`.

These commands work only if you have put the Frame product program directory in your path. If you have not done so, you must type the full pathname (for example, `/usr/frame/bin/demomaker`). For information about putting the Frame product directory in your path, see Chapter 2, "Setting Up Environments."

There are also several command-line options you can use to customize Frame products. For example, you can specify a file to open when the product starts. For more information, see the online manual *Changing Setup Files*.

Use the following commands to start Frame products.

To start[a]	For demonstration version, type	For licensed version, type
FrameMaker (US English)	`demomaker`	`maker`
International FrameMaker (default language)	`demoimaker`	`imaker`
International FrameMaker (specific language)	`demoimaker -l` *language*	`imaker -l` *language*
FrameBuilder (US English)	`demobuilder`	`builder`
International FrameBuilder	`demoibuilder`	`ibuilder`
FrameViewer	Not applicable	`viewer`
International FrameViewer (specific language)	Not applicable	`iviewer -l` *language*

a. Check with your Frame sales representative regarding the availability of these products.

When you start a Frame product, it searches for licensing information. If it does not find a license, it asks you if you want to start the demonstration version. For information about setting up licenses, see Chapter 3, "Setting Up Licenses." For information about how Frame products look for licensing information, see "What happens when you start a Frame product" on page 34.

After you start a Frame product, you can look at the online introduction document file, `DemoDoc`, for some samples of documents created with Frame products. When the demonstration version starts, it prompts you to open this online document. For more information about learning Frame products, see *Getting Started* for your product.

RUNNING FRAME PRODUCTS ON A REMOTE SYSTEM

You can run Frame products locally or remotely. When running locally, a Frame product runs as a client application on your workstation. When running remotely, a Frame product runs as a client application on a remote system. In this case, the Frame product uses your workstation only as a display server, thus conserving your workstation resources. When deciding whether to run a Frame product locally or remotely, consider the following:

- If you run a Frame product remotely, your workstation won't have the added overhead of running the Frame product. This improves your local system performance.
- If your network is running near capacity, the additional load required to transmit display information from the remote system to your workstation can degrade network and workstation performance.

To run a Frame product remotely:

1 **Allow the remote host to use your workstation as a display server by typing:**
`xhost` *`client_host`*

where *`client_host`* is the name of the host on which you'll run the Frame product. To allow any host to use your workstation as a display server, type:
`xhost +`

2 **Log in to the host on which you'll run the Frame product by typing:**
`rlogin` *`client_host`*

3 **Designate your workstation as the display server.**
If you are using the C shell, type:
`setenv DISPLAY myhost:0`

If you are using the Bourne shell or Korn shell, type:
`DISPLAY=myhost:0;export DISPLAY`

where *myhost* is the host name of your workstation.

NOTE: If you don't want to change the `DISPLAY` variable, add the following option to the command you use to start a Frame product:

`-display hostname:0`

You'll need to use this option each time you start the product.

---

4 **Start the Frame product.**
See "Starting the Frame product" on page 43 for commands.

A

UPGRADING FROM AN EARLIER RELEASE

If you have an earlier release of a Frame product installed, you might want to retain its setup files and font information. After you install the new Frame product files, follow the instructions in this appendix for copying files from the earlier release's installation directory.

To learn more about how this release of a Frame product differs from earlier releases, see the online manual *What's New*, available from the Help system. (*What's New* is only available for products that have earlier releases or products that have significant changes between releases.)

DETERMINING HOW TO UPGRADE

Frame products store setup files, licensing information, and font information in a setup directory in `$FMHOME`. Check the name of the earlier release's setup directory to determine whether you can use its setup files.

If the earlier release stores setup files in `$FMHOME/fminit`, you can use those setup files with the current release. Simply copy them to the new release's `fminit` directory. You don't need to follow the remaining instructions in this appendix.

If the setup directory for the earlier release is named `.fminit2.0`, follow the instructions in this appendix to upgrade your existing setup files.

UPDATING LICENSES

The current releases of Frame products use different licensing information from earlier releases. You must set up new licenses. For instructions, see Chapter 3, "Setting Up Licenses."

USING EXISTING SETUP FILES

The setup files in the current Frame product `$FMHOME/fminit` and `$FMHOME/fminit/`*`UILanguage`* directories let you customize Frame products for your installation. (*`UILanguage`* is a user-interface language directory, for example, `usenglish`, `ukenglish`, or `francais`.) For more information about these setup files, see the online manual *Changing Setup Files*.

In earlier releases of Frame products, setup files were in `$FMHOME/.fminit2.0` and `$FMHOME/.fminit2.0/`*`UILanguage`*. You can use existing versions of some of these files with current Frame products.

Users can store their own custom Frame product settings in setup files within personal `fminit` directories in their home directories and other directories. When a Frame product starts, it searches for setup files in personal versions of `fminit` before it uses `$FMHOME/fminit`. Users switching to current Frame products should create new personal `fminit` directories and follow instructions in this section for adding files from existing personal `.fminit2.0` directories.

Using existing X resources

The X/Motif versions of Frame products store setup information as X Window System resources. The current Frame products support several new resources and make some resources used with earlier releases obsolete. Existing resource files will work with current Frame products because the products ignore obsolete resources. To customize the new features of Frame products, add the new resources to these files. For information, see the online manual *Changing Setup Files*.

Using existing setup files

Several setup files for current Frame products have the same names and functions as in earlier releases. Other setup files have changed names or functions. In addition, there are several new setup files. For information about these new files, see the online manual *Changing Setup Files*. Also, some of the files in the `fminit` directory have been reorganized into subdirectories that make them easier to locate and allow the same `fminit` directory to support several Frame products. For more information about the structure of the `fminit` directory, see the online manual *Managing Frame Products*.

Unchanged files

The following setup files are unchanged from earlier releases. You can copy them from the earlier release's `.fminit2.0` directory to the current `fminit` directory.

- `suffixlist`
- `inseteditors`
- `site.dict`

Do not copy FrameMaker 2.0 or earlier versions of these files to the current `fminit` directory. Instead, compare the old versions with the versions in the current `fminit` directory, and then edit the current files.

Changed files

The following setup files have been replaced by new files in current Frame products. Compare the customized file from the earlier release with the new file, and then customize the new file.

- The `.fminit2.0/custom.doc` file has been replaced by `fminit/`*`UILanguage`*`/CustomDocs/NewTemplate`. The new file serves the same function but is slightly different.
- The `.fminit2.0/`*`UILanguage`*`/ASCIITemplate.doc` file has been moved to `fminit/`*`UILanguage`*`/CustomDocs/ASCIITemplate`. It has the same function as in earlier releases.
- The `.fminit2.0/postscript_prolog` file has been moved to `fminit/ps_prolog`. It has the same function as in earlier releases.

Obsolete files

Current Frame products store macros in a format different from earlier releases, so existing macro files won't work with them. You'll need to re-record macros and store them in a new file. For instructions, see your user's manual.

USING TEMPLATES

You can use your templates from an earlier release by copying them from your old `fmtemplates` directory into the current templates directory, `$FMHOME/`*`UILanguage`*`/`*`product`*`/Templates`, where *`product`* is the name for a Frame product (`maker` for FrameMaker or `builder` for FrameBuilder). To convert the templates to the current format, open and save them with a current Frame product.

USING NONSTANDARD FONTS

Nonstandard fonts are fonts not provided on the Frame product distribution media. If you added nonstandard fonts to an earlier release, see the file `$FMHOME/fminit/utilities/README` for information on some scripts you must use to update your `fontlist` file.

USING TWO RELEASES SIMULTANEOUSLY

You should switch to the current version of a Frame product as soon as it is practical to do so. However, some users might want to run the current version and an earlier release simultaneously for a while, using the current version for new documents and the earlier release for existing documents. The current versions of Frame products automatically read and convert documents created with an earlier release. For more information about the changes between these releases, see the online manual *What's New.*

IMPORTANT: You cannot use an earlier release to open documents that you create with the new version of a Frame product. If you must use a current document with an earlier release, save the document as a Maker Interchange Format (MIF) file. For instructions, see your user's manual. When you open the MIF file with an earlier release, it retains all formatting available in that release. However, you lose new formatting features.

If you want to run two releases simultaneously, you must keep your path set to the earlier release's `$FMHOME` directory. After you install the current Frame product files in their own directory, do not run `fmusersetup` or change your environment. Do set up licenses. (For instructions, see Chapter 3, "Setting Up Licenses.")

Starting the earlier release

If the earlier release is in your path, you can start it from any directory except the current `$FMHOME/bin` directory. If you type the startup command there, a current Frame product starts. (The current directory, represented by a dot [.], must appear in your path before the directory containing the earlier release of Frame products.)

Starting the current release

To start current Frame products, provide the full pathname in the command you use to start the product. Program files are in the `bin` subdirectory of the current Frame product installation directory (`$FMHOME/bin`). For example:
`/usr/frame/bin/maker`

For Frame product commands, see Chapter 4, "Starting Frame Products."

You must also supply the pathname when starting a Frame utility program such as `fmbatch`. For example:
`/usr/frame/bin/fmbatch`

To make starting the current version easier, you might want to create an alias or a script that starts that version of the product. For instructions, see "Renaming Frame product commands" on page 20.

INDEX

A, B

add command 29
autostart script 32

C

CD-ROM, installing from 5
Changing Setup Files viii
commands, renaming Frame product 20
configuration files, using from an older release 48
copying Frame product files 16

D

delete command 31
directory, Frame products 2
disk space requirements x
done command 32

E

env.csh script 33
env.sh script 33
environment variables
  $FM_FLS_AUTO 33
  $FM_FLS_HOST 33
  $FMHOME 17

F

FDK, installing 5
file formats
  Maker Interchange Format (MIF) viii
files, setup, using from an older release 48
FilterPak, installing 5
fm_flb program 33
fm_fls program 33
fm_fls.log file 34, 35
fmaddlicense program 29–32
  add command 29
  delete command 31
  done command 32
  exiting 32
  help command 29
  list command 30
  reserve command 30
  timeout command 31
fmcheckinstall script 15
fmcopy script 16
$FM_FLS_AUTO environment variable 33
$FM_FLS_HOST environment variable 33
$FMHOME environment variable 17
fmreport program 35
fmsetupfls script 26
fmusersetup script 17
fonts
  installing 4
  using, added in an older release 50
Frame Developer's Kit (FDK), installing 5
Frame FilterPak, installing 5
Frame product commands, renaming 20
Frame product directory, creating 2
Frame product files, copying 16
Frame product setup files, using from an older release 48
Frame products
  getting licenses when starting 34
  running on a remote system 45
  starting 44

G, H

Getting Started tutorial vii
help command 29

I, J, K

installing 1–15
  from CD-ROM 5
  creating a Frame product directory 2
  fonts added in an older release 50
  over an older release 47–52
  renaming Frame product commands 20
  setting users' environments 17–20
  using setup files from an older release 48
  using two releases simultaneously 51

L

license passwords 25
license reports 35
license server host 25
licenses
  adding to the licenses file 29
  listing 30
  network requirements 24
  personal 23
  reassigning 31
  removing 31
  reporting usage 35
  reserved 24
  reserving 30
  setting up 23–41

shared 24
timeout interval 31
troubleshooting 37–41
communicating with license server 39
displaying messages 37
duplicate licenses 41
finding licenses 38
obtaining a license 41
specifying personal or shared 38
starting the license server 41
`licenses` file 25–31, 34, 38
licensing components 32–34
list command 30

M, N, O, P

Maker Markup Language (MML) file format viii
Managing Frame Products viii
MML file format viii
personal licenses 23
setting up 28

Q, R

Quick Reference vii
`readtape` script 13–15
registration cards 25
renaming Frame product commands 20
reserve command 30
reserved licenses 24
setting up 30

S

scripts
`autostart` 32
CD-ROM installation 12
`env.csh` 33
`env.sh` 33
`fmcheckinstall` 15
`fmcopy` 16
`fmsetupfls` 26
`fmusersetup` 17
`readtape` 13–15
setup files, using from an older release 48
shared licenses 24
network requirements 24
setting up 25

T

tape, installing from 13
templates viii
timeout command 31
timeout interval 31

U, V

Using Frame Products on Multiple Platforms viii
variables, environment
`$FM_FLS_AUTO` 33
`$FMHOME` 17
`FM_FLS_HOST` 33

W, X, Y, Z

What's New viii
work groups 26

IMPORTANT NOTICE

Frame Technology® Corporation (Frame®) and its licensors retain all ownership rights to the FrameMaker® computer program and other computer programs offered by Frame (hereinafter collectively called "Frame Software") and their documentation. Use of Frame Software is governed by the license agreement accompanying your original media. The Frame Software source code is a confidential trade secret of Frame. You may not attempt to decipher or decompile Frame Software or develop source code for Frame Software, or knowingly allow others to do so. You may not develop passwords or codes or otherwise enable the Save feature of Frame Software. Frame Software and its documentation may not be sublicensed and may not be transferred without the prior written consent of Frame.

Only you and your employees and consultants who have agreed to the above restrictions may use Frame Software (with the Save feature enabled), and only on the authorized equipment.

Your right to copy Frame Software and this publication is limited by copyright law. Making copies, adaptations, or compilation works (except copies of Frame Software for archival purposes or as an essential step in the utilization of the program in conjunction with the equipment), without prior written authorization of Frame, is prohibited by law and constitutes a punishable violation of the law.

FRAME TECHNOLOGY CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL FRAME BE LIABLE FOR ANY LOSS OF PROFITS, LOSS OF BUSINESS, LOSS OF USE OR DATA, INTERRUPTION OF BUSINESS, OR FOR INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND, EVEN IF FRAME HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES ARISING FROM ANY DEFECT OR ERROR IN THIS PUBLICATION.

Frame may revise this publication from time to time without notice. Some states or jurisdictions do not allow disclaimer of express or implied warranties in certain transactions; therefore, this statement may not apply to you.

Copyright © 1986–1993 Frame Technology Corporation. All rights reserved.

In the United States, Frame, the Frame logo, FrameMaker, FrameReader, Frame Technology, and FrameViewer are registered trademarks, and FrameBuilder, FrameMaker International Dictionaries, FrameMath, FrameServer, and FrameWriter are trademarks, of Frame Technology Corporation.

The following are trademarks or registered trademarks of Frame Technology Corporation in countries outside of the United States: Frame, the Frame logo, FrameBuilder, FrameMaker, FrameMaker International Dictionaries, FrameMath, FrameReader, FrameServer, Frame Technology, FrameViewer, and FrameWriter.

The spelling and thesaurus portions of Frame Software are based on THE PROXIMITY LINGUISTIC SYSTEM © 1992 Proximity Technology Inc.; C.A. Stromberg AB; Espasa-Calpe; Hachette; IDE a.s.; Kruger; Lluis de Yzaguirre i Maura; Merriam-Webster Inc.; Munksgaard Int. Publishers Ltd.; Nathan; Text & Satz Datentechnik; Van Dale Lexicographie bv; William Collins Sons & Co. Ltd.; Zanichelli. All rights reserved.

PANTONE® Computer Video simulation used in Frame Software may not match PANTONE-identified solid color standards. Use current PANTONE Color Reference Manuals for accurate color. PANTONE Color Computer Graphics © Pantone, Inc. 1986, 1988.

The following are trademarks or registered trademarks of their respective companies or organizations:

Apple, AppleTalk, Macintosh, LaserWriter, ImageWriter, Finder, MultiFinder, QuickDraw, MacroMaker / Apple Computer, Inc.

Proximity, Linguibase / Proximity Technology Inc.

Sun Microsystems, Sun Workstation, TOPS, NeWS, NeWSprint, OpenWindows, TypeScaler, SunView, SunOS, NFS, Sun-3, Sun-4, Sun386i, SPARC, SPARCstation / Sun Microsystems, Inc.

All other brand or product names are trademarks or registered trademarks of their respective companies or organizations.

Any provision of Frame Software to the US Government is with "Restricted Rights" as follows: Use, duplication, or disclosure by the Government is subject to restrictions set forth in subparagraphs (a) through (d) of the Commercial Computer-Restricted Rights clause at FAR 52.227-19 when applicable, or in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013, and in similar clauses in the NASA FAR Supplement. Any provision of Frame Software documentation to the US Government is with Limited Rights. The contractor/manufacturer is Frame Technology Corporation, 1010 Rincon Circle, San Jose, CA 95131.

US versions are printed in the United States; international versions are printed in Ireland.